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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,423	02/12/2001	Atsuomi Inukai	108573	8148

25944 7590 10/23/2002

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EXAMINER

PIZIALI, JEFFREY J

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/780,423

Applicant(s)

INUKAI, ATSUOMI

Examiner

Jeff Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 and 7-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Cali et al. (US 5,489,900).

Regarding claim 1, Cali discloses a pointing device including: a sensor substrate [Fig. 1; 110] having a flat board form [Fig. 1; 112]; a stick member [Fig. 3; 130] vertically provided on the sensor substrate; at least a pair of strain sensors [Fig. 1; 102-108] arranged in symmetrical relation to each other with respect to the stick member; and a slit [Fig. 1; 128] formed on the sensor substrate near the strain sensor, the slit inducing an increase in an amount of deformation generated in the sensor substrate during operation of the stick member (see Column 2, Line 20 - Column 3, Line 13).

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Regarding claim 2, Cali discloses the sensor substrate is made of a flexible insulative material (see Column 2, Lines 20-24).

Regarding claim 3, Cali discloses the strain sensor is made of a resistive material which changes its resistance value with stress applied to the strain sensor (see Fig. 6; Column 3, Lines 24-50).

Regarding claim 4, Cali discloses the resistance material is formed adhering onto the insulative material by a layer forming technique (see Column 2, Line 20 - Column 3, Line 13).

Regarding claim 7, Cali discloses another pair of strain sensors [Fig. 1; 128] arranged on the sensor substrate in a direction perpendicular to a line connecting the first pair of strain sensors while passing through a center of the stick member, wherein the strain sensors are arranged at 90 degree angular intervals around the stick member (see Column 2, Line 20 - Column 3, Line 13).

Regarding claim 8, Cali discloses two parallel slit portions are provided at both sides of each of the strain sensors, and the slit portions formed between the strain sensors adjacently arranged are connected to form the slit in an L-shape (see Fig. 1; Column 2, Line 20 - Column 3, Line 13).

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Regarding claim 9, Cali discloses four L-shaped slits are formed at 90 degree angular intervals around the stick member, and the four L-shaped slits jointly form a cross-shaped intersecting area (see Fig. 1; Column 2, Line 20 - Column 3, Line 13).

Regarding claim 10, Cali discloses chip resistances [Fig. 1; 116-126] capable of being trimmed, connected in series with the strain sensors correspondingly and arranged out of the intersecting area on the sensor substrate (see Fig. 2; Column 2, Lines 20-62).

Regarding claim 11, Cali discloses a strain detecting substrate section [Fig. 1; 112] on which the stick member and the strain sensors are disposed, this section being used for detecting an amount of strain of the sensor substrate by means of the strain sensors, the strain being caused by operation of the stick member; and a signal processing substrate section [Fig. 2; 142] for signal processing [Fig. 6; 160, 162] the strain amount of the sensor substrate detected by the strain detecting substrate section; wherein the strain detecting substrate section and the signal processing substrate section are connected through a connecting substrate section [Fig. 2; 140] which is narrower in width than the sensor substrate (see Column 2, Line 48 - Column 3, Line 50).

Regarding claim 12, Cali discloses the connecting substrate section is produced by formation of cut-out portions from both sides of the sensor substrate in its width direction toward a center thereof (see Fig. 2; Column 2, Line 48 - Column 3, Line 50).

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Regarding claim 13, Cali discloses an engagement member portion protruding from a lower end of the stick member; an attachment hole [Fig. 2; 146] formed in the sensor substrate, in which the engagement portion is inserted; and a fixing member [Fig. 2; 144] for fixing the engagement portion of the stick member inserted in the attachment hole, the fixing member being attached from a back surface of the sensor substrate; wherein the stick member is vertically provided on the sensor substrate in an engagement relation thereto (see Figs. 2 & 3; Column 2, Line 48 - Column 3, Line 23).

Regarding claim 14, this claim is rejected by the reasoning applied in the above rejection of claim 1, furthermore Cali discloses a keyboard provided with a plurality of keys arranged on a keyboard substrate and a pointing device mounted on a part of an operating face of the keyboard (see Fig. 2; Column 2, Lines 48-62).

Regarding claim 15, this claim is rejected by the reasoning applied in the above rejection of claims 1 and 14, furthermore Cali discloses an electronic device provided with a keyboard; a controller for controlling various data input with the keys on the keyboard; and a display for displaying the data under control by the controller (see Fig. 6; Column 1, Lines 5-41 and Column 3, Lines 24-50).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cali et al. (US 5,489,900).

Regarding claim 5, Cali does not expressly disclose the layer forming technique is selected from among a vacuum deposition method, a sputter method, and a vapor phase deposition method. However, such layer forming techniques were well known and commonly understood at the time of invention. Therefore, it would have been obvious to one skilled in the art at the time of invention to use a vacuum deposition method, a sputter method, or a vapor phase deposition method as Cali's layer forming technique, so as to form the resistance material adhering to the insulative material using traditionally appropriate and operationally successful layering methods.

Regarding claim 6, Cali does not expressly disclose the resistance material is mainly composed of carbon. However, resistance materials made mainly of carbon were well known and commonly understood at the time of invention. Therefore, it would have been obvious to one skilled in the art at the time of invention to use mainly carbon as Cali's resistance material, so as to compose the resistance material using a operationally appropriate and commonly available material.

6. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cali et al. (US 5,489,900) in view of the present application's own admission of prior art.

Regarding claim 16, Cali does not expressly disclose each of the strain sensors is formed with a plurality of windows in which the resistance material is absent, the windows being arranged in aligned relation to a line connecting the pair of strain sensors while passing through a center of the stick member, and also each of the strain sensors is formed with a notch which is made by a trimming process of irradiating a laser beam to the strain sensor along the alignment direction of the windows. However, the present application discloses, as prior art, forming strain sensors [Fig. 14; 153] with a plurality of windows in which the resistance material is absent, the windows being arranged in aligned relation to a line connecting the pair of strain sensors while passing through a center of the stick member, and also each of the strain sensors is formed with a notch [Fig. 14, 153a] which is made by a trimming process of irradiating a laser beam to the strain sensor along the alignment direction of the windows (see Figs. 14 & 15; Page 2, Line 21 - Page 3, Line 27). Cali and the present application's prior art disclosure are analogous art, because they are from the shared field of strain sensing pointing devices. Therefore, it would have been obvious to one skilled in the art at the time of invention to use such a strain sensor formation as Cali's strain sensor circuitry, so as to prevent the inconsistency in an offset voltage outputted due to the sensors.

Regarding claim 17, this claim is rejected by the reasoning applied in the above rejection of claim 16; furthermore, the present application discloses, as prior art, the trimming process making the notch so that an endpoint of the notch is received within the window (see Figs. 14 & 15; Page 2, Line 21 - Page 3, Line 27).

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Regarding claim 18, Cali discloses the resistance material is formed adhering onto the insulative material by a thick layer printing technique (see Fig. 1; Column 2, Lines 1-2).

Regarding claim 19, Cali does not expressly disclose that the resistance material is a ruthenium material. However, resistance materials made from ruthenium materials were well known and commonly understood at the time of invention. Therefore, it would have been obvious to one skilled in the art at the time of invention to use ruthenium material as Cali's resistance material, so as to compose the resistance material using a operationally appropriate and commonly available material.

Regarding claim 20, Cali does not expressly disclose the ruthenium material is ruthenium dioxide. However, resistance materials made ruthenium dioxide were well known and commonly understood at the time of invention. Therefore, it would have been obvious to one skilled in the art at the time of invention to use ruthenium dioxide as Cali's resistance material, so as to compose the resistance material using a operationally appropriate and commonly available material.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Garrett, Michael J. (US 5,065,146), Brandenburg et al. (US 5,231,386), Mimlitch, Kenneth H. (US 5,467,108), Narusawa et al. (US 5,754,167), Barnes, James (US 5,774,113), Meyers et al. (US 5,883,690), Seffernick et al. (US 6,040,823), Berstis et al. (US 6,115,030),

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Ginn et al. (US 6,137,475), Kawachiya et al. (US 6,208,328), Kehlstadt et al. (US 6,248,018), Poole, David L. (US 6,359,613), and Leung, Wing-Keung (US 6,388,655) are cited to further evidence the state of the art pertaining to pointing devices, keyboards, and electronic devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (703) 305-8382. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



J.P.

October 21, 2002



KENT CHANG
PRIMARY EXAMINER